

What is claimed is:

1. An apparatus for reducing acoustic radiation/transmission by a vibrating surface, said apparatus comprised of:

a squeeze film damper capable of being coupled to a vibrating surface, said squeeze film damper having a substantially rigid planar base, a substantially planar, flexible cover supported above the substantially rigid planar base structure by a support structure such that the substantially planar rigid base, the support structure and the cover enclose a volume.

2. The apparatus of claim 1 wherein said volume is filled with gas.

3. The apparatus of claim 1 wherein said substantially rigid planar base is substantially round.

4. The apparatus of claim 1 wherein said substantially rigid planar base is substantially rectangular.

5. The apparatus of claim 1 wherein said support structure is comprised of a plurality of separate support structures placed about the perimeter of said substantially rigid planar base.

6. The apparatus of claim 1 further including a means for attaching said squeeze film damper to said surface.

7. The apparatus of claim 6 wherein said means for attaching said squeeze film damper is an adhesive.

8. The apparatus of claim 1 further including a surface to which said squeeze film damper is attached.

9. The apparatus of claim 8 wherein said surface is at least one of:
an aircraft;
a vehicle; and
a building.

10. The apparatus of claim 1 wherein the spacing between said base and said cover is greater than one micrometer.

11. An apparatus for reducing noise transmission from a vibrating surface, said apparatus comprised of:

an array of squeeze film dampers coupled to the vibrating surface, each of said squeeze film dampers being comprised of:

a substantially rigid planar base, a substantially planar, flexible cover supported above the substantially rigid planar base structure by a support structure such that the substantially planar rigid base, the support structure and the cover enclose a volume.

12. The apparatus of claim 11 further including a rigid foam cover over said array of squeeze film dampers.

13. The apparatus of claim 11 wherein said volume is filled with gas.

14. The apparatus of claim 11 wherein said substantially rigid planar base is substantially round.

15. The apparatus of claim 11 wherein said substantially rigid planar base is substantially rectangular.

16. The apparatus of claim 11 wherein said support structure is comprised of a plurality of separate support structures placed about the perimeter of said substantially rigid planar base.

17. A method reducing sound transmission from a vibrating surface, said apparatus comprised of:

applying an array of squeeze film dampers to the vibrating surface, each of said squeeze film dampers being comprised of:

a substantially rigid planar base, a substantially planar, flexible cover supported above the substantially rigid planar base structure by a support structure such that the substantially planar rigid base, the support structure and the cover enclose a volume.

18. The method of claim 16 wherein said step of applying an array of squeeze film dampers to the vibrating surface is further comprised of the step of:

applying an array of squeeze film dampers to an interior surface of an airplane.

19. The method of claim 16 wherein said step of applying an array of squeeze film dampers to the vibrating surface is further comprised of the step of:

applying an array of squeeze film dampers to an interior surface of a helicopter.

20. The method of claim 16 wherein said step of applying an array of squeeze film dampers to the vibrating surface is further comprised of the step of:

applying an array of squeeze film dampers to an interior surface of an automobile.

21. The method of claim 16 wherein said step of applying an array of squeeze film dampers to the vibrating surface is further comprised of the step of:

applying an array of squeeze film dampers to an interior surface of a structure.